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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/532,283	03/23/00	SUZUKI	K

EXAMINER	
ANDUJAR, L	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/532,283	Applicant(s) SUZUKI ET AL.	
	Examiner Leonardo Andujar	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15)☒ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other: .

DETAILED ACTION

This office action is in response to a communication filed on 7/11/00.

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 03/23/1999. The certified copy of the priority document has been received paper no. 4.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's prior art in view of Yamauchi et al. (US 5,640,067).

4. Regarding claims 1 and 13, applicant's prior art (figures 1 and 2a -2b) shows an organic electroluminescence device including an organic electroluminescence element 60, a thin film transistor 30 formed on a substrate 10. The organic emissive layer 62 is disposed between the first electrode or anode 61 and a second electrode or a cathode 63. A thin transistor active layer 43 made of polycrystalline silicon. The anode is made of indium tin oxide (ITO) which is a transparent conductive material. Applicant's prior art does not disclose a refractory metal layer connecting a source region or a drain region of the thin film transistor 30 to the anode of the organic electroluminescence element.

Moreover, applicant's prior art does not suggest the use of a refractory metal or an alloy from a metal group consisting of chromium, molybdenum, tungsten and titanium. However, Yamauchi discloses a refractory metal layers (111 and 112) to connect a drain region 107 of the thin film transistor to the transparent electrode 109 of the organic electroluminescence element. Moreover, the uses of a refractory metal (e.g. titanium) will prevent the diffusion of silicon atoms from the drain or source region to the drain or source electrode (e.g. aluminum electrode). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a refractory metal layer to connect the drain region to the anode of the electroluminiscence element of applicant's prior art in order to prevent the migration of silicon atoms to the source or drain electrode as taught by Yamauchi (column 1, lines 24-30).

5. Regarding claims 2 and 14 Yamauchi discloses a refractory metal in direct contact with the active layer (figure 2).

6. Regarding claim 3 and 15, Yamauchi discloses a first refractory metal layer 111 which is in direct contact with an active layer (105, 106 and 107). Also, Yamauchi discloses a second refractory metal layer 112 which is in direct contact with the transparent electrode 109 of the organic electroluminiscence element (figure 2).

7. Regarding claims 4 and 16, Yamauchi (figure 2) shows a conductive metal layer 114 disposed between the first refractory metal 111 and the second refractory metal 112.

8. Regarding claims 5-7 and 17-19, applicant's prior art shows an active layer 43 made of polycrystalline silicon (page 8, lines 8-10) and the anode 61 made of indium tin

oxide (page 4, lines 19-20). Yamauchi shows a conductive metal 114 made of aluminum (column 4, line 40), and the refractory metal layers made of titanium (column 4, lines 26-67).

9. Regarding claims 8 and 9 applicant's prior art in view of Yamauchi discloses most aspect of the instant invention (see paragraph 4), including a power source line 53 made of aluminum. What applicant's prior art in view o Yamauchi does not disclose is a power source line having a refractory metal in direct contact with the active layer. However, Yamauchi discloses a source electrode (110 and 113) having a refractory metal layer 110 (made of titanium) in direct contact with the active layer 105. Additionally, Yamauchi et al. discloses the use conventionally refractory metals such as chromium and titanium are used to prevent the migration of silicon atoms to the source or drain electrode. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the power source of applicant's prior art in view of Yamauchi having a refractory metal such as titanium in direct contact to the active layer in order to prevent the migration of silicon atoms to the electrode as taught by Yamauchi.

10. Regarding claim 10, Yamauchi discloses a first refractory metal layer 111 which is in direct contact with an active layer. Also, Yamauchi discloses a second refractory metal layer 112 which is in direct contact with the transparent electrode of the organic electroluminescence element (figure 2). Additionally, a conductive metals layer 114 is disposed between the first refractory metal 111 and the second refractory metal 112.

11. Regarding claim 11, applicant's prior art shows an active layer 43 made of polycrystalline silicon (page 8, lines 8-10) and the anode 61 made of indium tin oxide (page 4, lines 19-20).

12. Regarding claim 12, applicant's prior art shows (figure 1, 2A and 2B) a pixel has a switching thin film transistor 30 having a gate connected to gate line, one of the source and drain in the active layer made of semiconductor material and connected to a data line. The other source or and drain is connected to a gate of a thin film transistor 40 to control the flow of current supplied from the power source line 53 to the organic electroluminescence element. Moreover, the active layer of the switching thin film transistor making contact with the data line via a metal. Yamauchi discloses a refractory metal to make contact with a data line.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nagura (US 5,792,673), Yamazaki (US 6,115,007) and Matsushima (US 6141,066, JP08194451) disclose structures and procedures similar to the instant invention.

14. Papers related to this application may be submitted directly to Art Unit 2826 by facsimile transmission. Papers should be faxed to Art Unit 2826 via the Art Unit 2826 Fax Center located in Crystal Plaza 4, room 4C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2826 Fax Center number is **(703) 308-7722** or **–7724**. The Art Unit 2826 Fax Center is to be used only for papers related to Art Unit 2814 applications.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Leonardo Andújar** at **(703) 308-0080** and between the hours of 9:00 AM to 5:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via Leonardo.Andujar@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn, can be reached on (703) 308-6601.

16. Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703)305-3900**.

17. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/40, 501; 438/7	05/16/01
Other Documentation:	
Electronic Database(s): East (USPAT, US PGPUB, JPO, EPO, Derwent, IBM TDB)	05/16/01

Leonardo Andújar
Patent Examiner Art Unit 2826
LA
5/16/01

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